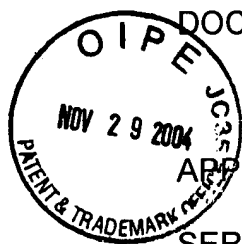


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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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)  
SERIAL NO: 09/997,446 ) Group Art Unit: 1732  
)  
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TITLE: METHOD OF MANUFACTURE OF GLASS REINFORCED GYPSUM  
BOARD (As Amended)

**AMENDED CLAIMS**

1. (original) A method of manufacture of gypsum board having inorganic fiber face sheets, comprising the steps of:

providing a first gypsum slurry having a first consistency;

applying a predetermined amount of said first gypsum slurry onto at least a first continuous sheet, said sheet including randomly aligned, inorganic fibers having random interstices between said fibers;

passing said first continuous inorganic fiber sheet through a gypsum application station, said station including two applicator wheels for passing the inorganic fiber sheet therethrough, so as to cause the first gypsum slurry having a first consistency to penetrate through said random interstices between the inorganic fibers and to thereby coat both top and bottom surfaces of said first inorganic fiber sheet with said gypsum slurry having a first consistency;

depositing a second gypsum slurry having a second consistency on said first inorganic fiber sheet and causing said second gypsum slurry to be essentially evenly distributed over an upwardly facing top surface of said first inorganic fiber sheet;

applying a third gypsum slurry having a third consistency to a second of said at least one continuous, inorganic, fiber sheets, said second inorganic fiber sheet having random interstices between the fibers and causing said third gypsum slurry to penetrate essentially completely through said random interstices and to thereby coat both top and bottom surfaces of said second inorganic fiber sheet with said third gypsum slurry;

applying said second inorganic fiber sheet onto the second gypsum slurry thereby sheathing said second gypsum slurry within said first and second inorganic fiber sheets to form a wet gypsum board; and

forming said gypsum board product by passing said wet gypsum board through a board forming station having a lower forming plate and an upper forming plate, said upper forming plate having at least a portion thereof being set at a predetermined angle to said lower forming plate, the separation between said lower forming plate and said portion of said upper forming plate defining a predetermined dimension substantially equal to the desired thickness of the manufactured gypsum board product.

2. (original) The method of manufacture of gypsum board according to Claim 1 wherein said step of providing said first gypsum slurry further comprises providing said first gypsum slurry having a slurry consistency which is substantially denser relative to said second gypsum slurry consistency.

3. (original) The method of manufacture of gypsum board according to Claim 1 wherein said step of applying said third gypsum slurry further comprises applying a third gypsum slurry having a third gypsum slurry consistency which is substantially identical to said first gypsum slurry consistency.

4. (currently amended) The method of manufacture of gypsum board according to Claim 1 wherein said steps of applying said first and third gypsum slurries to said ~~lower and upper~~ first and second inorganic fiber sheets further ~~comprise~~ comprise obtaining ~~a supply of~~ said first and third gypsum ~~slurry~~ slurries from an identical gypsum slurry supply.

5. (currently amended) The method of manufacture of gypsum board according to Claim 1, wherein said inorganic fiber of said ~~lower and upper~~ first and second fiber sheets further comprises a glass fiber.

6. (currently amended) ~~The~~ A method of manufacture of gypsum board ~~according to Claim 1 further comprising an additive step prior to the step depositing said first gypsum slurry, said step comprising~~ having inorganic fiber face sheets, comprising the steps of:

providing a first gypsum slurry having a first consistency;

introducing a polymeric compound additive to said first gypsum slurry ~~prior to depositing said first gypsum slurry on said lower inorganic fiber sheet;~~

applying a predetermined amount of said first gypsum slurry onto at least a first continuous sheet, said sheet including randomly aligned, inorganic fibers having random interstices between said fibers;

passing said first continuous inorganic fiber sheet through a gypsum application station, said station including two applicator wheels for passing the inorganic fiber sheet therethrough, so as to cause the first gypsum slurry having a first consistency to penetrate through said random interstices between the inorganic fibers and to thereby

coat both top and bottom surfaces of said first inorganic fiber sheet with said gypsum slurry having a first consistency to produce a gypsum polymer layer;

depositing a second gypsum slurry having a second consistency on said first inorganic fiber sheet and causing said second gypsum slurry to be essentially evenly distributed over an upwardly facing top surface of said first inorganic fiber sheet;

applying a third gypsum slurry having a third consistency to a second of said at least one continuous, inorganic, fiber sheets, said second inorganic fiber sheet having random interstices between the fibers and causing said third gypsum slurry to penetrate essentially completely through said random interstices and to thereby coat both top and bottom surfaces of said second inorganic fiber sheet with said third gypsum slurry;

applying said second inorganic fiber sheet onto the second gypsum slurry thereby sheathing said second gypsum slurry within said first and second inorganic fiber sheets to form a wet gypsum board; and

forming said gypsum board product by passing said wet gypsum board through a board forming station having a lower forming plate and an upper forming plate, said upper forming plate having at least a portion thereof being set at a predetermined angle to said lower forming plate, the separation between said lower forming plate and said portion of said upper forming plate defining a predetermined dimension substantially equal to the desired thickness of the manufactured gypsum board product.

7. (currently amended) The method of manufacture of gypsum board according to Claim 5 6 further comprising a step<sub>1</sub> following the board forming station step<sub>1</sub> of applying an acrylic coating onto at least one of said lower and upper surfaces of said gypsum

board and thereby causing said acrylic coating to bond with said polymeric additive in said first ~~and third~~ gypsum slurries slurry.

8. (currently amended) The method of manufacture of gypsum board according to Claim 1 further comprising a step for folding the lateral edges of said first continuous inorganic fiber sheet over said second gypsum slurry prior to said step of applying said second inorganic fiber sheet onto the second gypsum slurry.

9. (original) The method of manufacture of gypsum board according to Claim 1 wherein said step of passing said first continuous inorganic fiber sheet through a gypsum application station further comprises rotating said two applicator wheels in the forward direction relative to the motion of said inorganic fiber sheet through said gypsum application station.

10. (currently amended) The method of manufacture of gypsum board according to Claim 1 wherein said step of passing said first continuous inorganic fiber sheet through a gypsum application station further comprises rotating said two applicator wheels in the reverse direction relative to the ~~motion~~ direction of movement of said first inorganic fiber sheet through said gypsum application station.

11. (currently amended) The method of manufacture of gypsum board according to Claim 1 wherein said step of depositing said second gypsum slurry on said first continuous inorganic fiber sheet is followed by dispersing said unset second gypsum

slurry over said first continuous inorganic fiber sheet so as to uniformly cover said unset second gypsum slurry over said an upwardly facing surface of said first inorganic fiber sheet.

12. (original) The method of manufacture of gypsum board according to Claim 1 wherein said step of passing said first continuous inorganic fiber sheet through a gypsum application station further comprises passing said first continuous inorganic fiber sheet through two applicator wheels, at least one of said applicator wheels including a thin film polymer coating on the surface thereof.

13. (currently amended) The method of manufacture of gypsum board according to Claim 1 wherein said step of passing said first continuous inorganic fiber sheet through a gypsum application station further comprises passing said first continuous inorganic fiber sheet through two applicator wheels, at least one of said applicator wheels including a thin film polymer coating on the surface thereof, said thin film polymer coating further comprising Teflon® at least one compound selected from the group consisting of polytetrafluoroethylene, tetrafluoroethylene fluorocarbon and fluorinated ethylene propylene.

14. (original) The method of manufacture of gypsum board according to Claim 1 further comprising passing the wet gypsum board through an edger bar assembly, after the board forming step, so as to form the lateral edges of said gypsum board product and to complete the smoothing of the upper surface of said gypsum board product.

15. (currently amended) The method of manufacture of gypsum board according to Claim 6 further comprising, after the board forming step, ~~an acrylic application step including a step of~~ applying an acrylic coating over the gypsum slurry containing said polymer layer on said gypsum board surface, ~~before said polymer is cured and then curing said polymer layer.~~

16. (original) The method of manufacture of gypsum board according to Claim 15 wherein said acrylic coating is applied by flood coating.

17. (currently amended) The method of manufacture of gypsum board according to Claim 6 wherein said additive step includes adding to said unset gypsum at least one polymeric compound selected from a group consisting of polyacrylamide, polymethylacrylamide, polyvinylidene chloride (PVDC), ~~Nylon<sup>®</sup>~~ polyamide, polyvinylchloride (PVC), polyethylene, cellulose acetate, ~~Bunyl<sup>®</sup> Rubber~~ Nitrile Rubber, polycarbonate, polypropylene, polystyrene, styrene, butadiene, styrene butadiene copolymer, ~~Neoprene<sup>®</sup>~~, ~~Teflon<sup>®</sup>~~ polychloroprene, polytetrafluorethylene, tetrafluoroethylene fluorocarbon, fluorinated ethylene propylene, natural rubber, poly (2,6 dimethyl pentene oxide), poly 4, methyl pentene-1 and polydimethyl siloxane.

18-31. (Cancelled)

Please add the following new Claims 32-34:

32. (new) The method of manufacture of gypsum board according to Claim 6 wherein said additive step includes adding to said unset gypsum at least one polymeric compound selected from a group consisting of polyacrylamide, polymethylacrylamide, polyvinylidene chloride (PVDC), polyamide, polyvinylchloride (PVC), polyethylene, cellulose acetate, Nitrile Rubber, polycarbonate, polypropylene, polystyrene, styrene, butadiene, styrene butadiene copolymer, polychloroprene, polytetrafluorethylene, tetrafluoroethylene fluorocarbon, fluorinated ethylene propylene, natural rubber, poly (2,6 dimethyl pentene oxide), poly 4, methyl pentene-1 and polydimethyl siloxane.

33. (new) The method of manufacture of gypsum board according to Claim 32 further comprising, after the board forming step, a step of applying an acrylic coating over the gypsum slurry containing said polymer layer on said gypsum board surface, and then curing said polymer layer.

34. (new) The method of manufacture of gypsum board according to Claim 1 further comprising, after the board forming step, a step of applying an acrylic coating over the gypsum slurry containing said polymer layer on said gypsum board surface, and then curing said polymer layer.